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VEVOR VP145

VEVOR 4.5 CFM AC Vacuum Pump and Gauge Set Instruction Manual

Model: VP145

1. Introduction

This manual provides essential instructions for the safe and efficient operation, setup, and maintenance of your VEVOR 4.5 CFM AC Vacuum Pump and Gauge Set. This kit is designed for evacuating and charging automotive and HVAC air conditioning systems, compatible with refrigerants such as R134a, R22, R12, R502, R410A, R404A, and R407C. Please read this manual thoroughly before use to ensure proper function and to prevent damage to the equipment or injury.



Image 1.1: The VEVOR 4.5 CFM AC Vacuum Pump and Gauge Set, ready for use.

2. Safety Information

Always observe the following safety precautions to reduce the risk of injury or damage:

- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves, when handling refrigerants or operating the pump.

- Ensure the work area is well-ventilated to prevent the accumulation of refrigerant vapors.
- Do not operate the pump near open flames or sources of ignition.
- Always disconnect the power supply before performing any maintenance or repairs.
- Handle refrigerant cylinders with care and follow all manufacturer guidelines for their use and storage.
- Do not use the pump for purposes other than those specified in this manual.
- Keep children and unauthorized personnel away from the equipment during operation.

3. Product Overview and Components

Your VEVOR AC Vacuum Pump and Gauge Set includes all necessary components for HVAC system maintenance. Familiarize yourself with each part before beginning any operation.

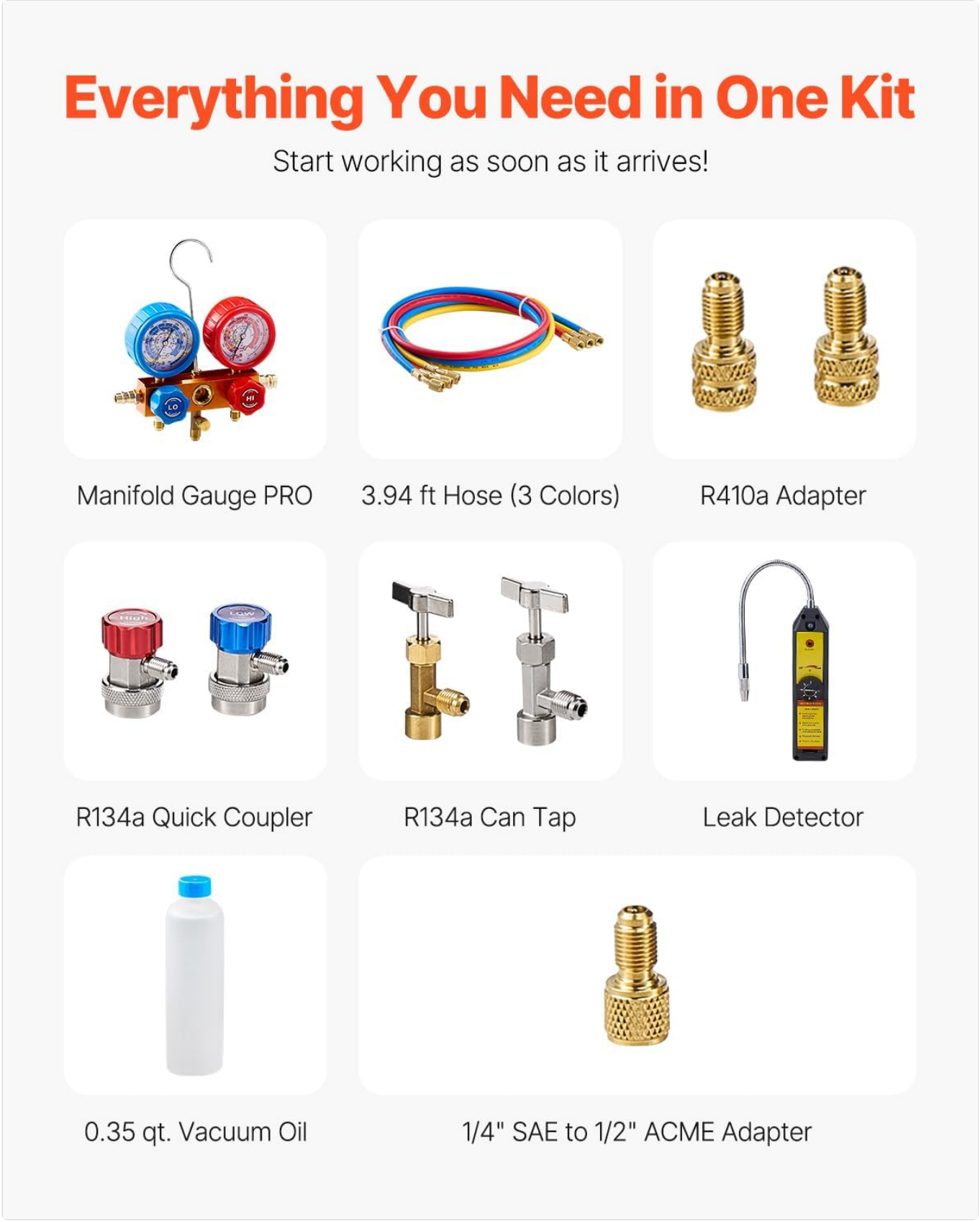

Image 3.1: A visual representation of all items included in the kit, such as the vacuum pump, manifold gauge, hoses, and adapters.

Included Components:

- **Single-Stage Vacuum Pump:** A 4.5 CFM pump with a durable 4-stage pure copper motor, delivering an ultimate vacuum of 5 Pa.
- **Manifold Gauge Set:** An upgraded PRO manifold gauge with ±1.6% accuracy for precise pressure monitoring.
- **Color-Coded Hoses:** Three 3.94 ft (1200 mm) hoses (red, blue, yellow) with a working pressure range of 800 PSI

to 4000 PSI.

- **Leak Detector:** For identifying refrigerant leaks.
- **R410a Adapter:** For compatibility with R410a systems.
- **R134a Quick Couplers:** For secure connections to R134a systems.
- **1/4" SAE to 1/2" ACME Adapter:** For versatile connection options.
- **Can Taps (2):** For accessing refrigerant cans.
- **Vacuum Oil (0.35 qt. / 330 ml):**For initial setup and maintenance.
- **Carrying Bag:** For convenient storage and transport.

Key Features of the Vacuum Pump:



Image 3.2: An illustration detailing the single-stage rotary vane mechanism and copper motor of the vacuum pump.

- **Powerful Motor:** 4-stage pure copper motor for efficient vacuuming.
- **High Vacuum:** Achieves an ultimate vacuum of 5 Pa.
- **Oil Capacity:** 0.27 qt. (260 ml) oil reservoir.

Key Features of the Manifold Gauge:

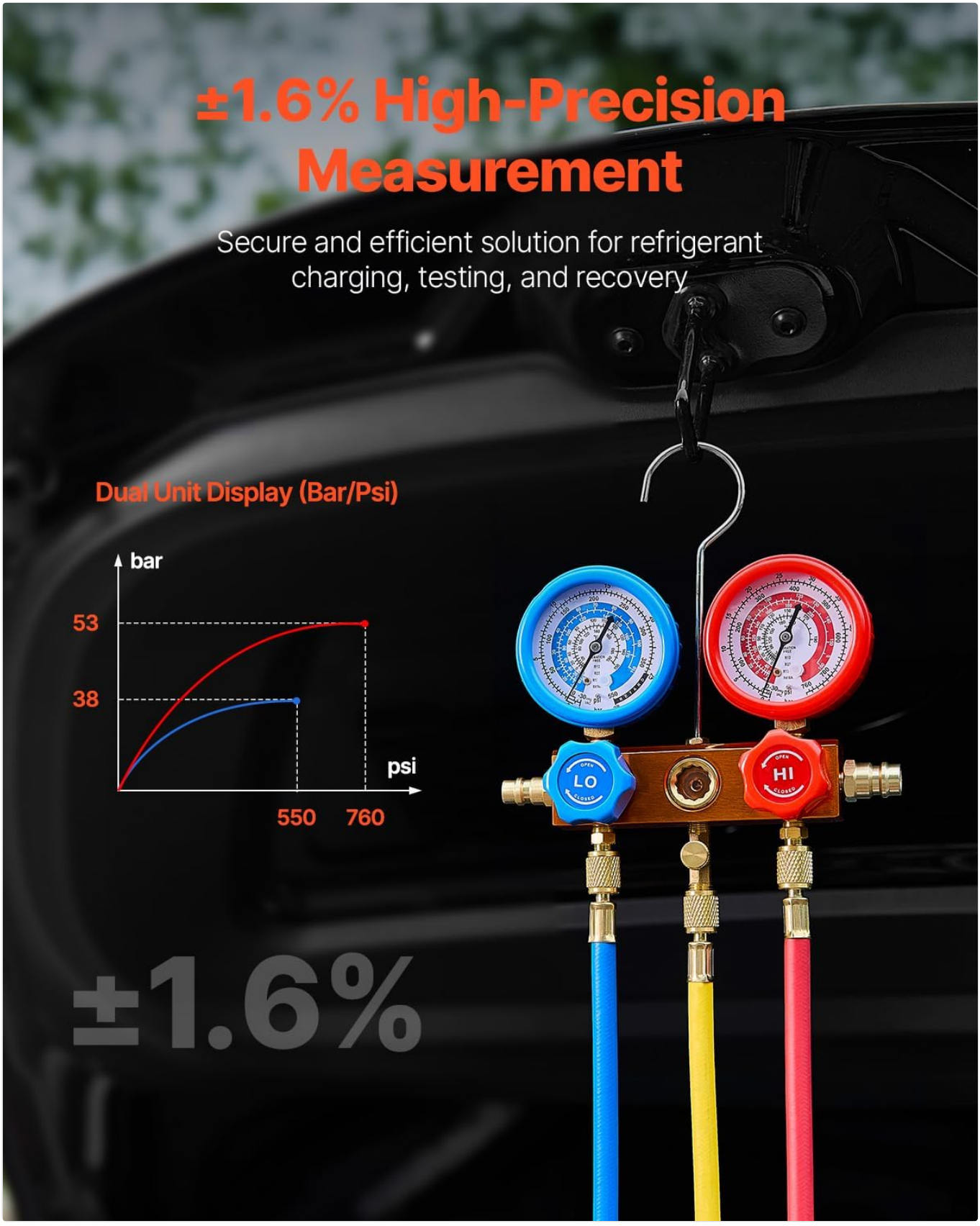

Image 3.3: A detailed view of the manifold gauge, highlighting its precision and dual unit display.

- **High Accuracy:** ±1.6% accuracy for reliable pressure readings.
- **Enhanced Pressure Resistance:** Built for durability under various pressures.
- **Large Viewing Glass:** Ensures clear and easy-to-read measurements.

4. Setup

Before operating the vacuum pump, proper setup is crucial.

4.1 Adding Vacuum Oil

1. Locate the oil fill port on the vacuum pump, usually marked with an oil cap.
2. Remove the oil cap.
3. Carefully pour the provided vacuum oil into the fill port until the oil level reaches between the 'MIN' and 'MAX' marks on the oil sight glass. Do not overfill.
4. Replace the oil cap securely.



Image 4.1: The vacuum pump with labeled components, including the visible oil window for monitoring oil levels.

4.2 Connecting the Manifold Gauge and Hoses

1. Ensure all valves on the manifold gauge are closed.
2. Connect the red hose to the 'HI' (high-pressure) port on the manifold gauge.
3. Connect the blue hose to the 'LO' (low-pressure) port on the manifold gauge.
4. Connect the yellow (service) hose to the central port on the manifold gauge. This hose will connect to the vacuum

pump or refrigerant source.

5. Attach the appropriate quick couplers or adapters (e.g., R134a quick couplers) to the red and blue hoses for connection to the vehicle's or system's high and low-side service ports.
6. Connect the yellow service hose to the intake fitting of the vacuum pump.

5. Operating Instructions

This section outlines the general procedure for evacuating and charging an AC system. Always refer to the specific service manual for the system you are working on for detailed refrigerant capacities and procedures.



Image 5.1: The vacuum pump and manifold gauge set connected to an AC system, illustrating a typical setup for service.

5.1 System Evacuation (Vacuuming)

1. Ensure all connections are tight and secure.

2. Connect the red and blue hoses to the high and low-side service ports of the AC system, respectively.
3. Ensure the yellow service hose is connected to the vacuum pump.
4. Open both the high and low-side valves on the manifold gauge.
5. Turn on the vacuum pump. Allow the pump to run until the manifold gauge indicates a deep vacuum (typically below 500 microns or 29.92 inHg). The 4.5 CFM pump is designed for efficient evacuation.
6. Continue running the pump for an additional 15-30 minutes to ensure all moisture is removed from the system.
7. Once the desired vacuum is achieved, close both the high and low-side valves on the manifold gauge.
8. Turn off the vacuum pump.
9. Observe the manifold gauge for at least 15-30 minutes. If the vacuum holds steady, the system is leak-free and ready for charging. If the vacuum rises, there is a leak that needs to be addressed.

5.2 Leak Detection

Use the included leak detector to pinpoint any refrigerant leaks if the vacuum test fails.

1. Follow the leak detector's specific instructions for operation.
2. Carefully move the detector's probe around all connections, hoses, and components of the AC system.
3. The detector will indicate the presence of refrigerant leaks, allowing you to identify and repair them.

5.3 System Charging

After successful evacuation and leak testing, the system can be charged with refrigerant.

1. Ensure the vacuum pump is off and the manifold gauge valves are closed.
2. Disconnect the yellow service hose from the vacuum pump and connect it to the refrigerant source (e.g., a refrigerant can with a can tap or a refrigerant cylinder).
3. Purge the yellow hose by slightly opening the refrigerant source valve and then briefly loosening the yellow hose connection at the manifold gauge to release any air. Retighten the connection.
4. Open the low-side valve on the manifold gauge.
5. Open the refrigerant source valve to allow refrigerant to enter the system. Monitor the low-side pressure on the manifold gauge.
6. For liquid charging (if applicable and safe for the system), you may need to briefly open the high-side valve while the engine is off. Consult the system's service manual.
7. Once the desired amount of refrigerant has been added or the correct pressures are achieved (refer to the system's specifications), close the refrigerant source valve.
8. Close the low-side valve on the manifold gauge.
9. Disconnect the hoses from the service ports.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your vacuum pump.

6.1 Vacuum Pump Oil Change

Vacuum pump oil should be changed regularly, especially if it appears cloudy or discolored, indicating moisture contamination.

1. Ensure the pump is off and disconnected from power.

2. Place a suitable container under the oil drain plug, typically located at the bottom or side of the pump.
3. Remove the oil drain plug and the oil fill cap to allow the old oil to drain completely.
4. Replace the oil drain plug.
5. Pour new vacuum pump oil into the fill port until the level is between the 'MIN' and 'MAX' marks on the sight glass.
6. Replace the oil fill cap.
7. Dispose of used oil responsibly according to local regulations.

6.2 Cleaning and Storage

- Clean the exterior of the pump and manifold gauge with a damp cloth. Do not use harsh chemicals or solvents.
- Inspect hoses for cracks or damage before each use. Replace if necessary.
- Store the entire kit in the provided carrying bag in a cool, dry place, away from direct sunlight and extreme temperatures.



Image 6.1: The complete VEVOR kit, including the vacuum pump, manifold gauge, hoses, and accessories, neatly stored in its carrying bag for easy transport and protection.

7. Troubleshooting

Refer to this section for common issues and their potential solutions.

Problem	Possible Cause	Solution
Pump not starting	No power, faulty switch, motor issue	Check power connection, ensure switch is ON. If problem persists, contact support.
Pump not pulling sufficient vacuum	Low oil level, contaminated oil, leaks in system/hoses, worn pump components	Check/change oil. Inspect all connections and hoses for leaks. If pump components are suspected, contact support.
Vacuum does not hold after pump is off	Leak in AC system, leak in hoses or connections, faulty manifold gauge valve	Use leak detector to find system leaks. Check hose and manifold gauge connections. Test manifold gauge valves for proper sealing.
Manifold gauge inaccurate	Gauge damage, calibration issue	Avoid dropping or impacting the gauge. If consistently inaccurate, consider professional calibration or replacement.

For issues not covered here, or if troubleshooting steps do not resolve the problem, please contact VEVOR customer support.

8. Specifications

Detailed technical specifications for the VEVOR 4.5 CFM AC Vacuum Pump and Gauge Set.



Item Model Number: **VP145**

Free Air Displacement: **4.5 CFM**

Ultimate Vacuum: **5 Pa**

Intake Fitting: **1/4"SAE**

Oil Capacity: **0.27 qt. / 260 ml**

Net Weight: **18.74 lbs / 8.5 kg**

Compatible Refrigerants:

R134a, R22, R12, R502, R410A, R404, R407C

Item Dimensions (L x W x H):

10.83 × 4.72 × 8.86 in / 275 × 120 × 225 mm

Image 8.1: A visual representation of the vacuum pump's dimensions and a summary of its technical specifications.

Specification	Value
Model Number	VP145
Free Air Displacement	4.5 CFM

Specification	Value
Ultimate Vacuum	5 Pa
Intake Fitting	1/4" SAE
Oil Capacity	0.27 qt. / 260 ml
Net Weight	15.87 lbs / 8.5 kg
Compatible Refrigerants	R134a, R22, R12, R502, R410A, R404, R407C
Item Dimensions (L x W x H)	10.83 x 4.72 x 8.86 inches / 275 x 120 x 225 mm

9. Warranty and Support

VEVOR products are designed for reliability and performance. For warranty information, product support, or to purchase replacement parts, please visit the official VEVOR website or contact their customer service department. Keep your purchase receipt for warranty claims.

For additional support, you may refer to the VEVOR brand store on Amazon:VEVOR Store

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